

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims

Claims 1-58 (cancelled)

Claim 59 (new): A fiber optic module comprising:

_____ a connector for connection with a mother board;
_____ a laser diode driver to convert serial data received from said mother board to a laser diode electric signal for a laser diode;
_____ a laser diode module to convert said laser diode electric signal to a laser diode optical signal;
_____ a photo diode module to convert a photodiode optical signal to a photo diode electric signal;
_____ a semiconductor integrated circuit to convert said photo diode electric signal to photo diode serial data;
_____ a circuit board to carry thereon said connector, said laser diode driver, said laser diode module and said photo diode module; and
_____ a frame to hold said circuit board, said laser diode module and said photo diode module,
_____ wherein said frame further comprises an indication part indicative of a safety certification and/or production provided on said frame.

Claim 60 (new): A fiber optic module comprising:

_____ a connector for connection with a mother board;
_____ a laser diode driver to convert serial data received from said mother board to a laser diode electric signal for a laser diode;
_____ a laser diode module to convert said laser diode electric signal to a laser diode optical signal;
_____ a photo diode module to convert a photodiode optical signal to a photo diode electric signal;
_____ a semiconductor integrated circuit to convert said photo diode electric signal to photo

diode serial data;

a circuit board to carry thereon said connector, said laser diode driver, said laser diode module and said photo diode module; and

a frame to hold said circuit board, said laser diode module and said photo diode module,
wherein a data transmission rate of said laser diode optical signal is 130 Mbits/s or more.

Claim 61 (new): A fiber optic module comprising:

a connector for connection with a mother board;

a laser diode driver to convert serial data received from said mother board to a laser diode electric signal for a laser diode;

a laser diode module to convert said laser diode electric signal to a laser diode optical signal;

a photo diode module to convert a photodiode optical signal to a photo diode electric signal;

a semiconductor integrated circuit to convert said photo diode electric signal to photo diode serial data;

a circuit board to carry thereon said connector, said laser diode driver, said laser diode module and said photo diode module; and

a frame to hold said circuit board, said laser diode module and said photo diode module,
wherein said fiber optic module further comprises a module cap to be inserted into light outlet and inlet openings defined by said frame along a light inlet and outlet direction.

Claim 62 (new): A fiber optic module comprising:

a connector for connection with a mother board;

a laser diode driver to convert serial data received from said mother board through said connector to a laser diode electric signal for a laser diode;

a laser diode module including said laser diode, to convert said laser diode electric signal to a laser diode optical signal, said laser diode optical signal adapted for transmission to an optical fiber connected with said laser diode module, said laser diode optical signal having a data transmission rate of 1000 Mbits/s or more;

a photo diode module to convert a photodiode optical signal to a photo diode electric signal, said photodiode optical signal adapted for transmission from an optical fiber connected with said photo diode module, said photodiode optical signal having a data transmission rate of 1000 Mbits/s or more;

a semiconductor integrated circuit to convert said photo diode electric signal to a photo diode serial data, said photo diode serial data adapted for transmission to said mother board through said connector;

a circuit board to carry thereon said connector, said laser diode driver, said laser diode module, said photo diode module and said semiconductor integrated circuit; and

a frame to hold said circuit board, said laser diode module and said photo diode module, said frame comprising an indication part to indicate a satisfied specification of a laser safety standard.

Claim 63 (new): A fiber optic module comprising:

a connector for connection with a mother board;

a laser diode driver to convert serial data received from said mother board through said connector to a laser diode electric signal for a laser diode;

a laser diode module including said laser diode, to convert said laser diode electric signal to a laser diode optical signal, said laser diode optical signal adapted for transmission to an optical fiber connected with said laser diode module, said laser diode optical signal having a data transmission rate of 1000 Mbits/s or more;

a photo diode module to convert a photodiode optical signal to a photo diode electric signal, said photodiode optical signal adapted for transmission from an optical fiber connected with said photo diode module, said photodiode optical signal having a data transmission rate of 1000 Mbits/s or more;

a semiconductor integrated circuit to convert said photo diode electric signal to a photo diode serial data, said photo diode serial data adapted for transmission to said mother board through said connector;

a circuit board to carry thereon said connector, said laser diode driver, said laser diode module, said photo diode module and said semiconductor integrated circuit;

_____ a frame to hold said circuit board, said laser diode module and said photo diode module, said frame comprising an indication part to indicate a satisfied specification of a laser safety standard; and

_____ a module cap adapted to be inserted into light outlet and inlet openings defined by said frame along a light inlet and outlet direction and adapted to prevent dust from invading said laser diode module and said photo diode module in a non-operative mode of said fiber optic module.

Claim 64 (new): A fiber optic module comprising:

_____ a connector for connection with a mother board;

_____ a laser diode driver to convert serial data received from said mother board through said connector to a laser diode electric signal for a laser diode;

_____ a laser diode module including said laser diode, to convert said laser diode electric signal to a laser diode optical signal, said laser diode optical signal adapted for transmission to an optical fiber connected with said laser diode module, said laser diode optical signal having a data transmission rate of 1000 Mbits/s or more;

_____ a photo diode module to convert a photodiode optical signal to a photo diode electric signal, said photodiode optical signal adapted for transmission from an optical fiber connected with said photo diode module, said photodiode optical signal having a data transmission rate of 1000 Mbits/s or more;

_____ a semiconductor integrated circuit to convert said photo diode electric signal to a photo diode serial data, said photo diode serial data adapted for transmission to said mother board through said connector;

_____ a circuit board to carry thereon said connector, said laser diode driver, said laser diode module, said photo diode module and said semiconductor integrated circuit;

_____ a frame to hold said circuit board, said laser diode module and said photo diode module, said frame comprising an indication part to indicate a satisfied specification of a laser safety standard; and

_____ a supporting plate to fix said frame to said mother board.

Claim 65 (new): A fiber optic module as set forth in claim 64, wherein said supporting plate is

made of metallic material.

Claim 66 (new): A fiber optic module adapted for use between at least one optical fiber and a computer comprising:

_____ a connector for electric connection with the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber;

_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

_____ a photo diode module having an opening adapted for insertion of one of the at least one optical fiber, said photo diode module adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a photodiode electric signal;

_____ a semiconductor integrated circuit to output an electric digital signal according to said photodiode electric signal, said electric digital signal adapted for transmission as serial data to the computer through said connector;

_____ a sole circuit board to mount thereon said connector, said laser diode module, said laser diode driver, said photo diode module and said semiconductor integrated circuit; and

_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module, said housing comprising an indication part to indicate a satisfied specification of a laser safety standard.

Claim 67 (new): A fiber optic module as set forth in claim 66, wherein said indication part comprises a label.

Claim 68 (new): A fiber optic module as set forth in claim 67, wherein said housing comprises a flat surface and said label is pasted or bonded on said flat surface.

Claim 69 (new): A fiber optic module adapted for use between at least one optical fiber and a

computer comprising:

_____ a connector for electric connection with the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber;

_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

_____ a photo diode module having an opening adapted for insertion of one of the at least one optical fiber, said photo diode module adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a photodiode electric signal;

_____ a semiconductor integrated circuit to output an electric digital signal according to said photodiode electric signal, said electric digital signal adapted for transmission as serial data to the computer through said connector;

_____ a sole circuit board to mount thereon said connector, said laser diode module, said laser diode driver, said photo diode module and said semiconductor integrated circuit; and

_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module; and

_____ a module cap adapted to be inserted into at least one of light outlet and inlet openings defined by said housing and adapted to prevent dust from invading said laser diode module and said photo diode module.

Claim 70 (new): A fiber optic module as set forth in claim 69, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 71 (new): A fiber optic module as set forth in claim 70, wherein at least a part of said projection is adapted to be inserted into at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 72 (new): A fiber optic module as set forth in claim 71, wherein said projection is integrally formed with said module cap being made of resin.

Claim 73 (new): A fiber optic module as set forth in claim 69, wherein said module cap is adapted to be attached to said fiber optic module in a non-operative mode of said fiber optic module.

Claim 74 (new): A fiber optic module as set forth in claim 69, wherein said housing further comprises an indication part to indicate a satisfied specification of a laser safety standard.

Claim 75 (new): A fiber optic module as set forth in claim 74, wherein said laser diode optical signal and said photodiode optical signal are adapted to have a transmission rate of 1000 Mbits/s or more.

Claim 76 (new): A fiber optic module as set forth in claim 74, wherein said indication part comprises a label.

Claim 77 (new): A fiber optic module as set forth in claim 74, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 78 (new): A fiber optic module as set forth in claim 75, wherein said module cap is made of resin, and further comprises a pair of projections adapted to be inserted into said opening of said laser diode module and said opening of said photo diode module.

Claim 79 (new): A fiber optic module as set forth in claim 76, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 80 (new): A fiber optic module adapted for use between at lease one optical fiber and a

circuit board of a computer comprising:

_____ a connector for electric connection with the circuit board of the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber;

_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

_____ a photo diode module having an opening adapted for insertion of one of the at least one optical fiber, said photo diode module adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a photodiode electric signal;

_____ a semiconductor integrated circuit to output an electric digital signal according to said photodiode electric signal, said electric digital signal adapted for transmission as serial data to the computer through said connector;

_____ a sole circuit board to mount thereon said connector, said laser diode module, said laser diode driver, said photo diode module and said semiconductor integrated circuit; and

_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module; and

_____ a supporting plate to fix said housing to the circuit board of the computer.

Claim 81: A fiber optic module as set forth in claim 80, wherein said supporting plate is made of metallic material.

Claim 82 (new): A fiber optic module adapted for use between at least one optical fiber and a circuit board of a computer comprising:

_____ a connector for electric connection with the circuit board of the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber, said laser diode optical signal having a transmission rate of 1000 Mbits/s or more;

_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

_____ a photo diode module having an opening adapted for insertion of one of the at least one optical fiber, said photo diode module adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a photodiode electric signal, said photodiode optical signal having a transmission rate of 1000 Mbits/s or more;

_____ a semiconductor integrated circuit to output an electric digital signal according to said photodiode electric signal, said electric digital signal adapted for transmission as serial data to the computer through said connector;

_____ a sole circuit board to mount thereon said connector, said laser diode module, said laser diode driver, said photo diode module and said semiconductor integrated circuit;

_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module, said housing comprising an indication part to indicate a satisfied specification of a laser safety standard;

_____ a module cap adapted to be inserted into at least one of light outlet and inlet openings defined by said housing and adapted to prevent dust from invading said laser diode module and said photo diode module; and

_____ a metallic supporting plate to fix said housing to the circuit board of the computer.

Claim 83 (new): A fiber optic module as set forth in claim 82, wherein said indication part comprises a label.

Claim 84 (new): A fiber optic module as set forth in claim 82, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 85 (new): A fiber optic module as set forth in claim 83, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 86 (new): A fiber optic module adapted for use between at least one optical fiber and a computer comprising:

_____ a connector for electric connection with the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber;

_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

_____ a photo diode module having a photo diode element and an opening adapted for insertion of one of the at least one optical fiber, said photo diode element adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a current signal;

_____ an amplifier to convert said current signal into a voltage signal;

_____ a shaping circuit to convert said voltage signal into a digital signal, said digital signal adapted to be transmitted as serial data to the computer through said connector, said amplifier being located between said photo diode element and said shaping circuit;

_____ a sole circuit board to mount thereon, said connector, said laser diode module, said laser diode driver, said photo diode module, said amplifier and said shaping circuit; and

_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module, said housing comprising an indication part to indicate a satisfied specification of a laser safety standard.

Claim 87 (new): A fiber optic module as set forth in claim 86, wherein said indication part comprises a label.

Claim 88 (new): A fiber optic module as set forth in claim 87, wherein said housing comprises a flat surface and said label is pasted or bonded on said flat surface.

Claim 89 (new): A fiber optic module adapted for use between at least one optical fiber and a computer comprising:

_____ a connector for electric connection with the computer;
_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber;
_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;
_____ a photo diode module having a photo diode element and an opening adapted for insertion of one of the at least one optical fiber, said photo diode element adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a current signal;
_____ an amplifier to convert said current signal into a voltage signal;
_____ a shaping circuit to convert said voltage signal into a digital signal, said digital signal adapted to be transmitted as serial data to the computer through said connector, said amplifier being located between said photo diode element and said shaping circuit;
_____ a sole circuit board to mount thereon, said connector, said laser diode module, said laser diode driver, said photo diode module, said amplifier and said shaping circuit;
_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module; and
_____ a module cap adapted to be inserted into at least one of light outlet and inlet openings defined by said housing and adapted to prevent dust from invading said laser diode module and said photo diode module.

Claim 90 (new): A fiber optic module as set forth in claim 89, wherein said module cap further comprises at least a projection to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 91 (new): A fiber optic module as set forth in claim 90, wherein at least a part of said projection is inserted into at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 92 (new): A fiber optic module as set forth in claim 91, wherein said projection is integrally formed with said module cap being made of resin.

Claim 93 (new): A fiber optic module as set forth in claim 89, wherein said module cap is adapted to be attached to said fiber optic module in a non-operative mode of said fiber optic module.

Claim 94 (new): A fiber optic module as set forth in claim 89, wherein said housing further comprises an indication part to indicate a satisfied specification of a laser safety standard.

Claim 95 (new): A fiber optic module as set forth in claim 94, wherein said laser diode optical signal and said photodiode optical signal are adapted to have a transmission rate of 1000 Mbits/s or more.

Claim 96 (new): A fiber optic module as set forth in claim 94, wherein said indication part comprises a label.

Claim 97 (new): A fiber optic module as set forth in claim 94, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 98 (new): A fiber optic module as set forth in claim 95, wherein said module cap is made of resin, and further comprises a pair of projections adapted to be inserted into said opening of said laser diode module and said opening of said photo diode module.

Claim 99 (new): A fiber optic module as set forth in claim 96, wherein said module cap further comprises at least a projection adapted to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 100 (new): A fiber optic module adapted for use between at least one optical fiber and a

circuit board of a computer comprising:

_____ a connector for electric connection with the circuit board of the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber;

_____ a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

_____ a photo diode module having a photo diode element and an opening adapted for insertion of one of the at least one optical fiber, said photo diode element adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a current signal;

_____ an amplifier to convert said current signal into a voltage signal;

_____ a shaping circuit to convert said voltage signal into a digital signal, said digital signal adapted to be transmitted as serial data to the computer through said connector, said amplifier being located between said photo diode element and said shaping circuit;

_____ a sole circuit board to mount thereon, said connector, said laser diode module, said laser diode driver, said photo diode module, said amplifier and said shaping circuit;

_____ a housing to accommodate said circuit board, said laser diode module and said photo diode module; and

_____ a supporting plate to fix said frame to the circuit board of the computer.

Claim 101 (new): A fiber optic module as set forth in claim 100, wherein said supporting plate is made of metallic material.

Claim 102 (new): A fiber optic module adapted for use between at least one optical fiber and a circuit board of a computer comprising:

_____ a connector for electric connection with the circuit board of the computer;

_____ a laser diode module having an opening adapted for insertion of one of the at least one optical fiber, said laser diode module adapted to output a laser diode optical signal to the at least one optical fiber, said laser diode optical signal having a transmission rate of 1000 Mbits/s or

more;

a laser diode driver to drive said laser diode module according to serial data received from the computer through said connector;

a photo diode module having a photo diode element and an opening adapted for insertion of one of the at least one optical fiber, said photo diode element adapted to receive a photodiode optical signal from the at least one optical fiber and to convert said photodiode optical signal into a current signal, said photodiode optical signal having a transmission rate of 1000 Mbits/s or more;

an amplifier to convert said current signal into a voltage signal;

a shaping circuit to convert said voltage signal into a digital signal, said digital signal adapted to be transmitted as serial data to the computer through said connector, said amplifier being located between said photo diode element and said shaping circuit;

a sole circuit board to mount thereon, said connector, said laser diode module, said laser diode driver, said photo diode module, said amplifier and said shaping circuit;

a housing to accommodate said circuit board, said laser diode module and said photo diode module, said housing comprising an indication part to indicate a satisfied specification of a laser safety standard;

a module cap adapted to be inserted into at least one of light outlet and inlet openings defined by said housing and adapted to prevent dust from invading said laser diode module and said photo diode module;

and a metallic supporting plate to fix said frame to the circuit board of the computer.

Claim 103 (new): A fiber optic module as set forth in claim 102, wherein said indication part comprises a label.

Claim 104 (new): A fiber optic module as set forth in claim 102, wherein module cap further comprises at least a projection to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.

Claim 105 (new): A fiber optic module as set forth in claim 103, wherein module cap further

comprises at least a projection to oppose at least one of said opening of said laser diode module and said opening of said photo diode module.